

# STUDY OF DIGITAL MATERIAL AND STUDENTS

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**Abstract:** Changes are constant, so said always comes true. Nature changes everything with it in a given time for any stimuli. Education is no different to it. From ancient time, to medieval and now modern. In ancient time students used to recite whatever was given to them and passed it on with a verbal transfer. Then came about writing down the things to study, till printing was invented and all changed, with its course of academic. Books began to write, published in multiple copies and stored, to refer whenever one felt. But men use to make progress and, changed the future with binary codes. Now we have digital books (e-books), powerpoint presentation, motion pictures, and many more modes available on the internet and digital form in various forms like pdf, doc file, word pad and of lately kindle to add as a library, which facilitate the reading among students of every age. As a curiosity, we are tempted to analyze, now, when students have got various sources of learning, what is that students are following, or in other words, what is the current studying practices followed by students to acquire knowledge, and be competent enough to face the open market. Followed by a research survey and analysis, an attempt has been made by this paper to focus on the study practices and use of various tools for studying and gaining knowledge by today's undergraduates.

**Keywords:** Study Materials, E-Learning, Digital Notes,

## Introduction

Guru Brahma Guru Vishnu,  
Guru Devo Maheshwara,  
Guru Saakshat Para Brahma,  
Tasmai Shree Gurave Namaha.

This old saying in Sanskrit, simply says that one who teaches is like a god, as a teacher is imparting the knowledge and making a student enlighten about the right path to walk on. Learning is a continuous process and a person learns throughout his/her life.

Learning as a process has been studied scientifically and various experiments have been carried on in the last century such as Asch Conformity Study by Dr. Solomon Asch, Bobo Doll Experiment conducted by Dr. Albur Bandura and many such more tries to understand or study the various learning behaviour of the humans.

## Literature Review

We as humans are studying since we have evolved. Time and time various different methods have been evolved along with the humans. The early stage or the early education started with a

guru-shishya parampara or the teacher-student model. Were the teacher uses to do oral recitation and students use to follow the guru. This made all the knowledge available to each and every one as and when needed. This was scientifically audiovisual, a student has to be present in front of the guru when thought and the learning use to take place. The assessment would be perhaps by the performing the learned material in front of all and improving oneself. Vedas, Purans, Mantras were thought and remembered to be passed on to the next generation and the next generation would do the same. This passed on till humans started writing.

A lot changed with writing skills. The Ink was invented and humans started writing on leaves initially. Then was invented paper, which solved the problem of storage, as storing dried leaves was really difficult, as the natural product leaves with time use to get decomposed. Thus the ink needed to be penned again and again to preserve the knowledge. With the invention of paper, a lot became easy to use. Once written done, can be used again and again for over a longer period of time. But as humans believe in keep on moving, we made a big leap with the invention of the printing machine. This machine was built by Mr. Johannes Gutenberg in 1439, who was surprised a goldsmith. This shows the thirst we humans have and nothing can stop us.

This brought a revolution in the field of education and learning. Now it was possible to print all the books which were handwritten on paper. The work became easy and duplication was possible at a faster rate. Studying became easier, as now the copies of the literature were available to everyone and bigger scripts reduced their size. This continued till the 1980s where something called as the Internet was introduced as a useful information technology tool for computers to the world.

Internet was introduced in the 1980s by the American troops for their defence purposes. It's a technology which has changed every old thing in the world. With a perspective to learning, studying, the internet has evolved as a fireball. All the old techniques became outdated as with the internet, nothing was to be typed, no requirement of ink and above all, no need of printing on paper. This means ink as a resource was not used, no need to cut more trees for manufacturing papers, and one needs a computer to view all the data required to understand.

A machine called as computer became solutions for all the problems faced in the field. With a computer, one can write in white and black, be colorful, can create power point presentation, enjoy motion pictures, and many more things. With respect to teaching, smartboard is developed and replacing the blackboard. With smart board teaching became more fun and enjoyable, as drawing is now perfect, charting can be done, presentations can be made.

The main issue was the reach of the internet, as it was available only to those who have computers with them. This has been solved with the reach of the internet on the cell phone, an invention making communication and transferring information from one end of the world to other. Now all can be done with a cell phone in hand.

All the telecommunication companies are providing internet services, which was started as an add-on marketing tool and later became an integrated product. Now many telecommunication companies are even providing plans where costing is internet based and making calls are absolutely free.

Fig.1 helps us to understand the growth of the mobile internet users in India. Not only the urban parts but the rural counterpart has also shown growing habit of internet usage. In fact, the rural counterpart has shown 27 times growth while urban parts have increased 6folds in just last 4 years. In all a healthy change has been noticed with the usage of mobile phones and the internet facility with it. Information technology has emerged as a boon, providing problem -based solutions in every area and this technology has turned the education industry completely upside down.

Students have now got the power of education in their hand. With the latest technology of android and internet facility available at the tips of the finger, students are having access to information of the whole world. They can download e-books (internet version of a physical book) of any subject, study from them, and learn. Thus learning has become easier. For example, someone is ill, not able to go to the studying center; he and she can get the class notes from the friend, by clicking pictures of them and receiving it on the cell phones. Many such studying practices have evolved and changed the traditional way of learning. Yes, all good, for the students, by the students, to the students. A study of the cell phone users was conducted and findings were surprising, concluding 48% of the mobile users belonging to the age group of 18-24 years (Fig. 2). This category subsequently falls in the age group which belongs to the graduate and postgraduate students. Students would be using the mobile to be in touch with the family, friends, maybe for playing games, maybe for using social media, maybe for downloading music, videos and maybe for downloading the study material, which is easy to carry, easy to use, easy to operate. Almost a population of 178 million using the mobile phone, shows the depth of internet usage and digital study material available with the population (Fig. 2).

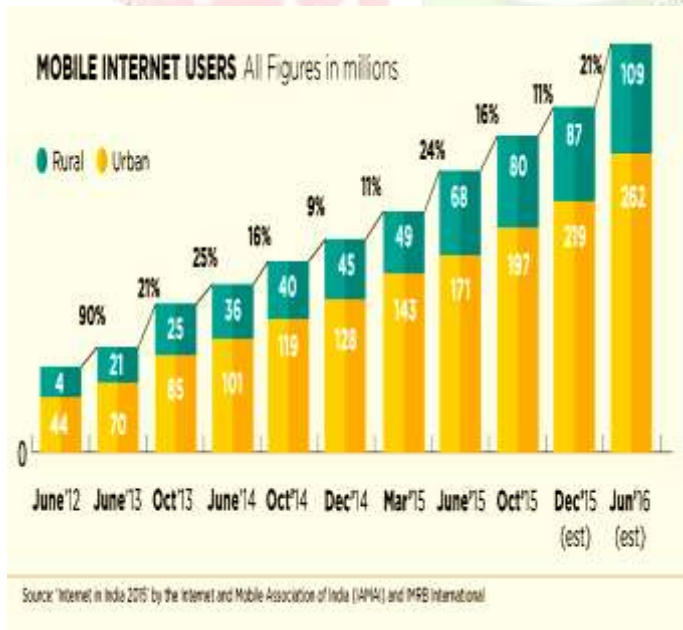


Figure 1 Depth of Mobile Internet Usage

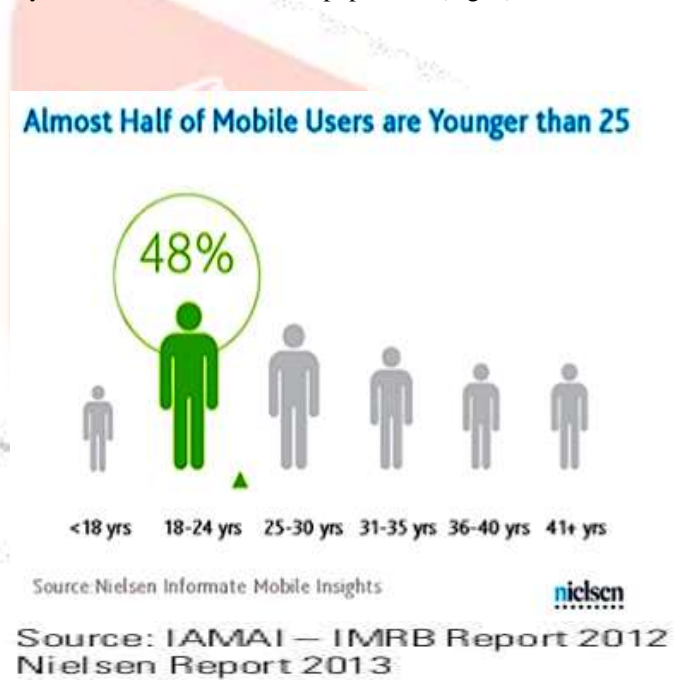


Figure 2 Age wise mobile users

And lastly, fig.3 a report from Cisco is trending for 829 million population to be the number of internet users in India by 2021, i.e. a forecast for next 3 years. If to be true, then 48% of this population that would be 398 millions of the students would be consuming the services of the internet for various purposes, educational as well as personal.

## Number of Internet users in India

Internet users in India to reach 829 million by 2021

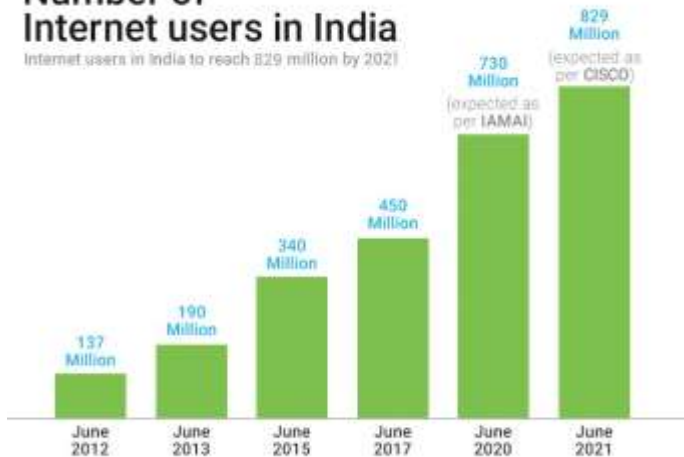


Figure 3 Forecast of Internet Usage

### Objectives

- To find out the proportion of students knowing digital learning.
- To analyse the statistics of students with digital study notes.
- To understand the most preferred mode of digital study.
- To compare digital learning with classroom whiteboard learning.
- To analyse requirement of a classroom teacher in presence of physical and digital study material.
- To map the student's mind for their preference with study material required for exams.

### Research Methodology

#### Data Collection Procedure

The data for the present paper was based on a questionnaire survey. A total of hundred engineering students comprising from the second year, third year and final year of degree were randomly selected for elicitation of data. The students are undergoing a technical course learning and are very well verse with the updated technologies around them and are a quite acquainted with both traditional and modern methods of studying the course.

The questionnaire was attended by the students in the mid of their daily lectures in the classroom itself and with the concern of the respective lecturers and contained both open ended and close ended questions for better analysis. The survey was made up of 10 questions arranged in the order of the objectives set for the paper.

### Results

The questions for the survey are as follows:

#### Question 1

##### How much idea do you have about E-Learning?

This was the basic question to understand the knowledge of digital learning. The level of awareness among students about the newly updated technology, which has been practiced worldwide including their part. The significance was to focus on the proportion of students knowing about the concept.

This was a multiple choice question to select one among the level of awareness they belong to. The results were divided among the level of understanding as 1) not much, 2) fine, 3) good and 4) excellent.

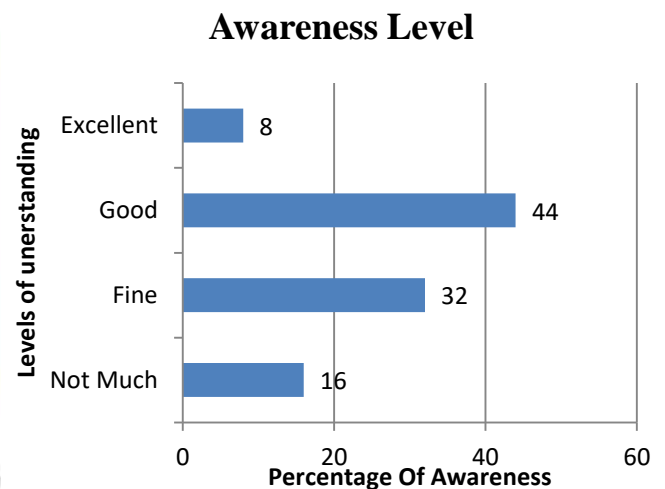


Figure 4 Level of Awareness

As we can see, almost of 84% of the student samples were found to be aware of the concept of digital learning or e-learning. Wherein 44% were found to be aware good about the concept and 8% students were found to be fully aware of the concept to deal with the same. But need to focus on the 16% of the crowd which says that not much is known about the concept of e-learning still and institutes need to provide knowledge to them.

#### Question 2

##### Have you ever done digital study?

The objective of the question was simple to understand about the hand on the technology by the students. This simply makes us understand the probable percentage of the sample undergoing a digital study.

**Question 3**

**Do you read e-books?**

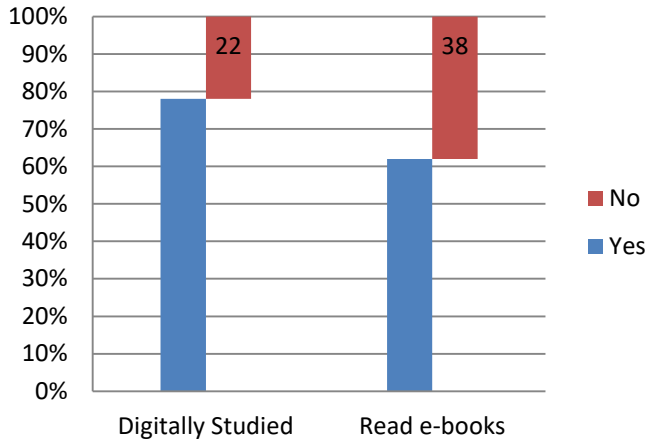
With the analysis of this result, we would be able to understand the popularity or the depth of e-books readership among the students. This helps us in framing the familiarity with the digital readership and the coverage it has taken among the population.

benefits of the students, to make them understand the various topics and come close to them, once we start using their preferences , we can expect more attendance , more concentration, more clarity of thoughts among them, which will help in making them competent to face the academic exams and also help them in improving their knowledge about the subjects thought.

The objectives provided were 1) e-Books 2) PowerPoint

3) Motion Picture 4) Smartboard

**Depth of Readership**



**Figure 5 Readership Depth**

Figure No. 5 of readership depth gives us insight into the quantum of students those go for digital study for their academics and of the readership depth of e-books as a part of a digital study for their course. It highlights that out of 84% (from fig 4) who are aware about the digital study material, 78% students (from fig 5) have already gone for digital study material, whereas a small gap of 6% students is created who say that they know about it, but never tried till now.

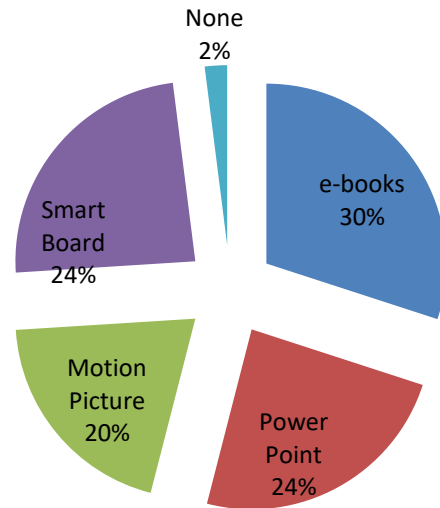
And among those, there is a population of 62% which says that they have read e-books, as one of the options available leaving behind 16% students who have studied with digital material but has not opted for e-books to study. Or we can say that 62% of the sample population has studied e-books, whereas still 38% crowd is still away from e-books and concentrating on another mode of digital material.

**Question 4**

**What kind of digital study material, you would prefer?**

Once we understood about the awareness and the depth of the digital readership, we wanted to know about the preference of the format, the students are more interested in for their readings. This was to understand, which mode as a lecturer, one can use for the

**Study Material Preferred**



**Figure 6 Study Material Preference**

Figure No. 3 concludes that when an option is given to students they have selected various others keeping only 30% with e-books. But also gives a clue about the other preferred materials students are interested those present in technology. We found 30% of the students are preferring e-books as the medium to study digitally. Whereas not far behind is powerpoint and smart board to attract the students with 24% each. Powerpoint is a method which mostly deals with the highlighted points of the subject, including colourful contents. This might be the point of attraction, as it saves time, delightful to read and remember. Whereas smart board is an instrument used by technical institutes to teach students replacing the traditional blackboard and going digital. Interestingly 20% students have shown to be learning by watching motion picture and gaining the knowledge. Perhaps a tough decision to make about the preference of the students among the various digital materials.

A small study prevails that fig 5 states about e-books readership are 62% and from fig 3 we can take away that out of 62% readership, only 30% prefer it as their best option to study.



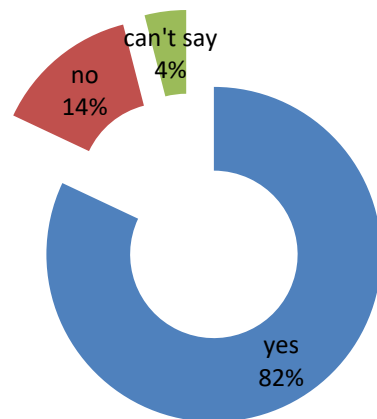
**Question 5**  
**How much of your study notes is digitally prepared?**

After understanding the of the preferred mode of material, we found the actual data of the amount of digital study material with the students available. This helps us to know the transformation stage from traditional notes and books to digital materials.

**Question 6**  
**Where do you search E-Books to study/read?**

It is important to make a study of the source, which is making the difference or transforming the studying habits of the students. No doubt the source is the internet, not presumed, but a known and accepted fact.

**Adoption of Change**



**Digital Preparedness**

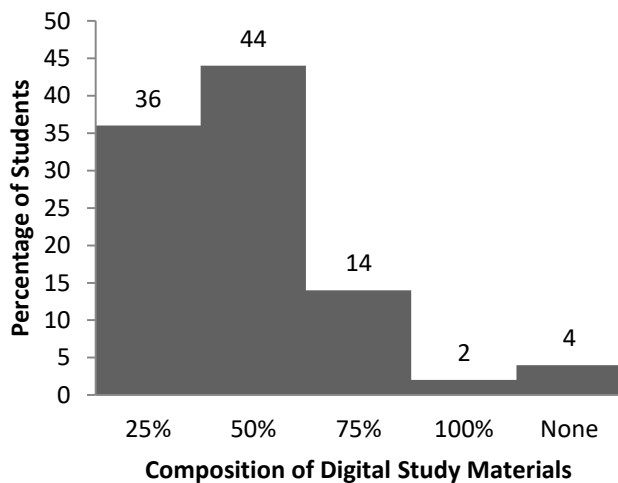


Figure 7 Digital Preparedness

**Question 7**  
**Do you think digital study can help understand topics much better than traditional whiteboard method?**

This was a close-ended question with two options yes and no. The purpose was clear to understand the importance of traditional classroom tools to teach and conduct lectures. The study would focus on the choice of the today's students, whether they have changed with the availability of the scientific tools of teaching, so called as problem-based learning solutions or would like to stick to the old age on methodologies with which they are familiar and are not interested in changes.

Figure 8 Adoption of Change

With relevance to fig 8, we can see a big change in the thought process of the students. 82% are of the opinion that whiteboard is an outdated method of teaching and digital materials are better than the traditional practices. Only 14% of the population is of the opinion that classroom board still holds the priority in teaching method. This change is radical as new technologies keep on coming and advancing, and the one used earlier becomes outdated. We can also conclude that digital materials used as problem-based solutions in teaching, is holding the change and students are getting benefitted due to it. A small portion of 4% still is confused to conclude about the same.

**Question 8**  
**How comfortable are you studying with digital material?**

This eighth question was simply put to check the comfort level of students with digital materials to study. How good they are able to handle the tools, or are they finding it difficult to do a course or regular study with the digital material. It was multiple choice questions, creating four levels of comfort viz, 1) not much, 2) fine, 3) good and 4) excellent. Dividing the students under these level can guide us with the adoption level of the students with the advanced technology.

**Question 9**  
**How much do you think you need a teacher, if you have access to digital material for studying?**

The question was covering the objective of the research paper, as it will let us know about the dependency of the students on the classroom lecturer. The question was a multiple choice based on four options of 25%, 50%, 75% and 100%. This will help us check whether the new problem-based learning tools can make

students independent. If yes, then probably this may sooner or later cab brings an end to the physical presence of teachers to teach.

machine was invented) and the e-books (the most modern format of study material)

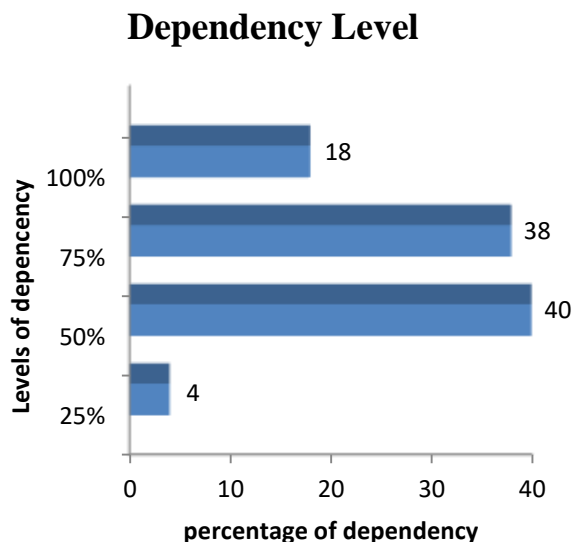


Figure 9 Dependency Level

Something to cheer and happy moments for the traditional methodology, as students are still of the opinion that a classroom teacher is a must as more the 96% of the student sample say that teacher is required for 50% and above for teaching and guiding them. 56% of the population requires a teacher for 75% or more in their studies, and 18% of the students are those who require a classroom teacher for their studies and there is no substitute for it. This feedback concludes that a human touch is a must even though there come technologies which bring changes with them. Or we can conclude that a human presence is must, as it is this human factor only who is handling the technology, and it is difficult to opt out of him.

**Question 10**

**For exam, what would you prefer to study?**

Lastly, the paper studied about the preference of the study material with respect to the exams, the event which every student is concerned about and tries to give his/her best performance. In this situation, has digital study material taken over the traditional manuscripts. Obviously the choices are given where the class notes/self-notes (oldest traditional of jotting down the learning when the classroom lecturer is teaching), the textbook of the subject (which is the medieval product, started after the printing

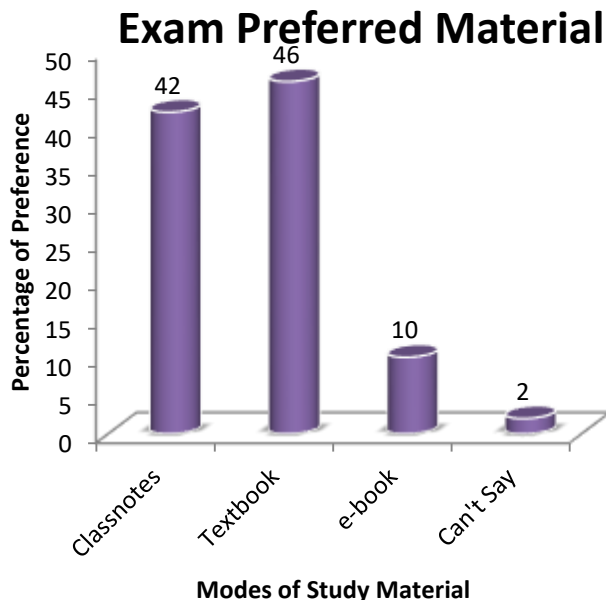


Figure 10 Exam Preferences

Finally, when analysed about the preference about the mode of study material, we came to the conclusion that, digital study material has the least preference to study from when to be studied for an exam. The survey resulted in only 10% in favour of the digital notes. The opinion of the student samples are of the view that it is the printing revolution that has the most dependence factor to be reliable, and the second most preference comes to be the self-notes or class notes, written down during the lectures. This also says that 42% of the students who are stating to refer class notes are of the opinion, that, for learning one has to be present in the class and of course, stating the requirement of a class teacher, lecturer, professor (the human factor), matching with fig. 6, where 56% of the population has committed that they are depended on a lecturer for 75% and more.

**Conclusion**

- The survey concluded that majority of the students are aware of the concept of the internet.
- E-books, is the most preferred format for digital study followed by power point, smart board.
- More than half of the population is studying with the digital study material in their preparation.
- 80% of the population is of the view that tradition whiteboard can be replaced with modern instruments for class learning.

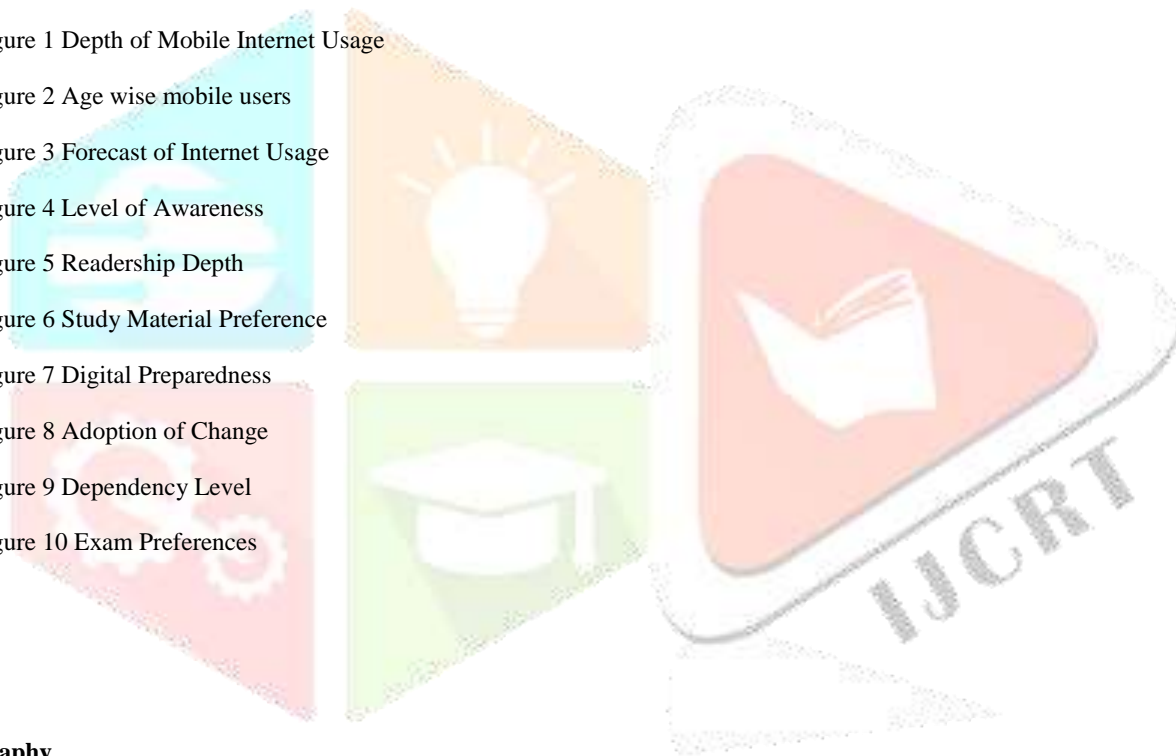
- Students still are of the opinion that a teacher is required to study and without him, it will be difficult to carry on.
- Even with the change in technology, students still prefer to study from printed hard copies of a textbook to face the exams.

### Recommendations:

- 1) Since e-books are preferred, institutes must be encouraged to start digital libraries, storing all the relevant books for the courses. In fact should have digital copies of all the titles available in hard copies, so that if the library falls short of the books to issue, they

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can provide e-books. This will help in bridging the gap between demand and supply of the study material.

- 2) 80% of the student populations are of the view that smart boards are better than whiteboards, thus institutes must replace the traditional instrument if possible economically. For this institutes are supposed to compulsorily teach the usage of a smart board to each and every teaching staff. As once the teachers are familiar with the smart board, they can make learning easier for the students.

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